STD & SPEC 3.06

BRUSH BARRIER

BB

Definition

A temporary sediment barrier constructed at the perimeter of a disturbed area from the residue materials available from clearing and grubbing the site.

Purpose

To intercept and retain sediment from disturbed areas of limited extent, preventing sediment from leaving the site.

Conditions Where Practice Applies

1. Below disturbed areas subject to sheet and rill erosion, where enough residue material is available for construction of such a barrier.

2. Where the size of the drainage area is no greater than one-fourth of an acre per 100 feet of barrier length; the maximum slope length behind the barrier is 100 feet; and the maximum slope gradient behind the barrier is 50 percent (2:1).

Planning Considerations

Organic litter and spoil material from site clearing operations is usually burned or hauled away to be dumped elsewhere. Much of this material can be used effectively on the construction site itself. During clearing and grubbing operations, equipment can push or dump the mixture of limbs, small vegetation and root mat along with minor amounts of rock into windrows along the toe of a slope where erosion and accelerated runoff are expected. Because brush barriers are fairly stable and composed of natural materials, maintenance requirements are small. Field experience has shown, however, that many brush barrier installations are not effective when there are large voids created by the use of material which is too large (such as tree stumps) to provide a compact, dense barrier. Therefore, it is necessary to use residual material under 6 inches in diameter which will create a more uniform barrier or utilize a filter fabric overlay to promote enhanced filtration of sediment-laden runoff.

Design Criteria

A formal design is not required.

Construction Specifications

Without Filter Cloth

1. The height of a brush barrier shall be a minimum of 3 feet.

2. The width of a brush barrier shall be a minimum of 5 feet at its base (the sizes of brush barriers may vary considerably based upon the amount of material available and the judgement of the design engineer).

3. The barrier shall be constructed by piling brush, stone, root mat and other material from the clearing process into a mounded row on the contour. Material larger than 6 inches in diameter should not be used to create the mound as the non-homogeneity of the mixture can lead to voids where sediment-laden flows can easily pass.

If a Filter is Used (see Plate 3.06-1)

1. Filter fabric must meet the minimum physical requirements noted in Table 3.05-B.

2. The filter fabric shall be cut into lengths sufficient to lay across the barrier from its up-slope base to just beyond its peak. Where joints are necessary, the fabric shall be spliced together with a minimum 6-inch overlap and securely sealed.

3. A trench shall be excavated 6-inches wide and 4-inches deep along the length of the barrier and immediately uphill from the barrier.

4. The lengths of filter fabric shall be draped across the width of the barrier with the uphill edge placed in the trench and the edges of adjacent pieces overlapping each other.

5. The filter fabric shall be secured in the trench with stakes set approximately 36 inches on center.

6. The trench shall be backfilled and the soil compacted over the filter fabric.

7. Set stakes into the ground along the downhill edge of the brush barrier, and anchor the fabric by tying twine from the fabric to the stakes.

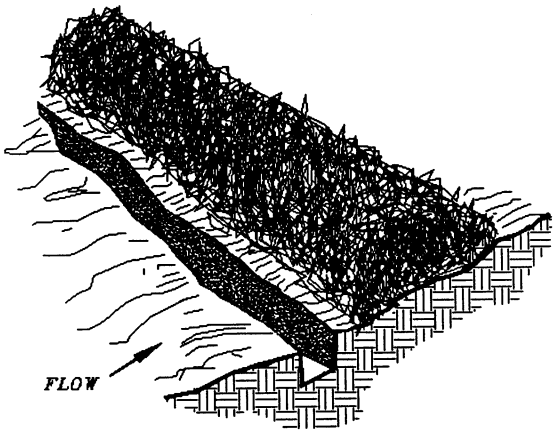
Maintenance

1. Brush barriers shall be inspected after each rainfall and necessary repairs shall be made promptly.

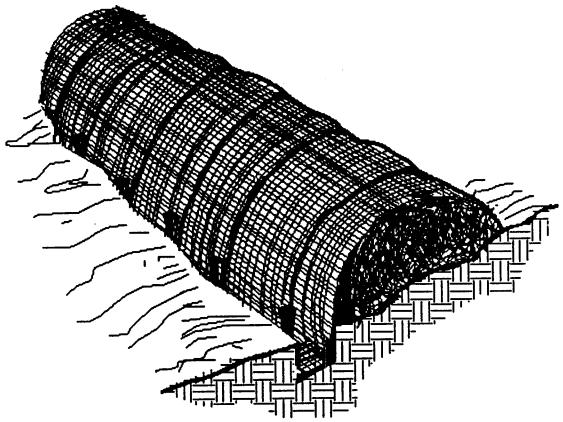
2. Sediment deposits must be removed when they reach approximately one-half the height of the barrier.

CONSTRUCTION OF A BRUSH BARRIER COVERED BY FILTER FABRIC

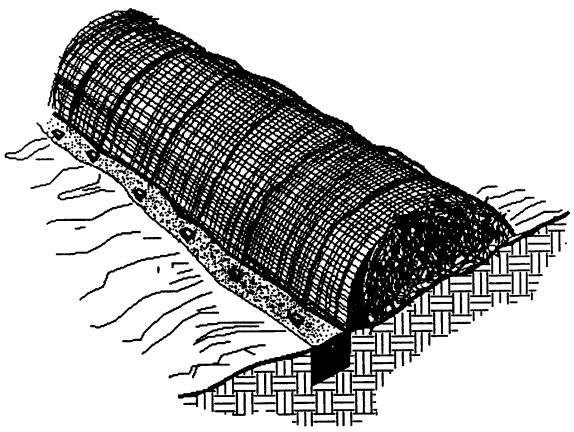
(TREE/RESIDUAL MATERIAL WITH DIAMETER > 6")



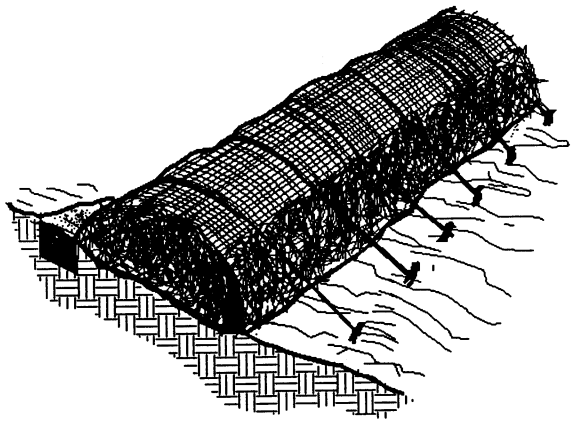
1. EXCAVATE A 4"X 4" TRENCH ALONG THE UPHILL EDGE OF THE BRUSH BARRIER.



2. DRAPE FILTER FABRIC OVER THE BRUSH BARRIER AND INTO THE TRENCH. FABRIC SHOULD BE SECURED IN THE TRENCH WITH STAKES SET APPROXIMATELY 36" O.C.



3. BACKFILL AND COMPACT THE EXCAVATED SOIL.



4. SET STAKES ALONG THE DOWN-HILL EDGE OF THE BRUSH BARRIER, AND ANCHOR BY TYING TWINE FROM THE FABRIC TO THE STAKES.

Source: Va. DSWC

Plate 3.06-1